# ADHD Management

**Prepared for Texas Medicaid in January 2021**

## EXECUTIVE SUMMARY

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|---|---|
| Purpose of Intervention | The goal of this quality management program is to assist in caring for children and adolescent patients with ADHD by promoting safe drug therapy. |

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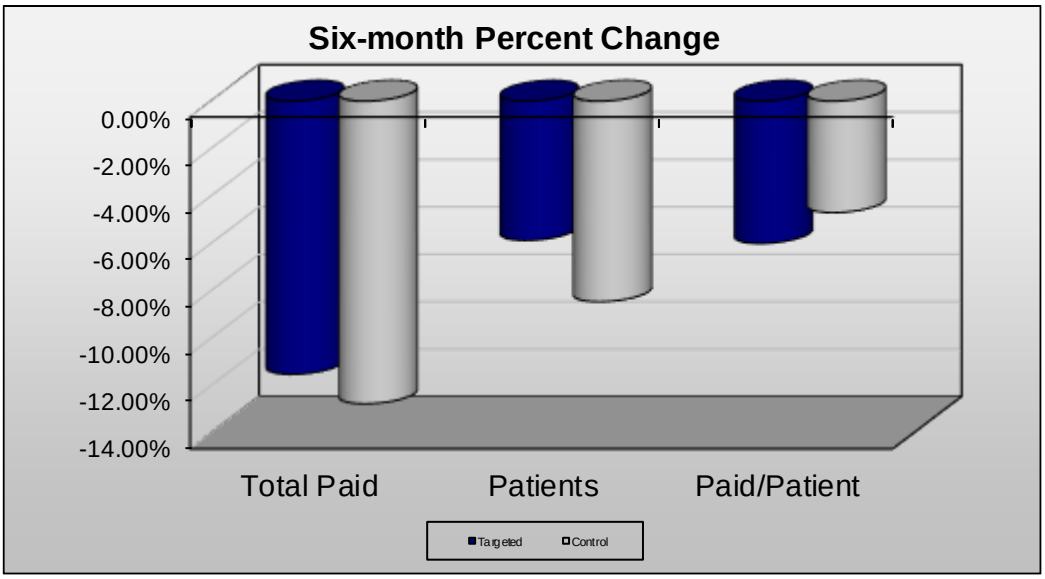
|---|---|---|
| Intervention | Intervention Type | Population-based mailing |
| | Intervention Mailing Date | May 18, 2020 |
| | Pre-intervention Period (Baseline) | Dec 2019 – May 2020 |
| | Post-intervention Period (Post) | July 2020 – Dec 2020 |
| | Number of Letters Mailed | 73 |
| | Number of Targeted Physicians | 73 |




## Savings Calculation

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| State Cost Savings Calculation: | |
|---|---|
| Targeted Group: Actual ADHD Management Drugs Average Cost Per Patient Per Month (Pre) | $180.68 |
| % Change in Control Group from Pre to Post | -4.70% |
| Estimated ADHD Management Drugs Paid Amount Per Targeted Patient Per Month if No Intervention | $172.18 |
| Targeted Group: ADHD Management Drugs Cost Per Patient Per Month (Post) | $169.83 |
| Estimated Cost Savings Per Patient Per Month | $2.35 |
| Total Monthly Number of Targeted Panel Patients Served in Post Period | 31,563 |
| 6-Month Total Savings | $74,173.05 |
| 6-Month State General Revenue Funds Savings | $29,676.64 |
| 12-Month Total State Savings | $59,353.27 |

## BACKGROUND

The goal of this quality management program is to assist in caring for your children and adolescent patients with ADHD by promoting safe drug therapy. Texas Medicaid uses the Texas Department of Family and Protective Services (DFPS) literature-based recommended maximum doses for stimulants and non-stimulants.

ADHD is the most common childhood developmental disorder. In community samples it has a reported prevalence rate of 8 to 10% in school age children.[1] It is a disorder that can affect all aspects of a child's life. Of equal importance, up to 60% of children with ADHD will continue to show symptoms as adults.[2] Stimulant medications have been the mainstay of pharmacological treatment of ADHD for many years.[1]

### Indicator #1: ADHD Medication with No Indication in Adults

Use of ADHD medications only for their respective indications will help ensure safe and effective utilization. Over diagnosis of ADHD and over-prescribing of ADHD medications are problems in some communities.

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| Candidates (denominator): | All adult patients receiving targeted medications for ADHD (Table 1) in the past 30 days |
| Exception Criteria (numerator): | Candidates without a diagnosis of ADHD or narcolepsy for certain products in the last 2 years. |

### Indicator #2: Dose Consolidation for Extended-Release Stimulants

By consolidating dosages, medication compliance may increase and pharmaceutical expenditures may decrease.

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| Candidates (denominator): | All adult patients with a diagnosis of ADHD receiving targeted medication(s) and doses in the past 30 days (Table 2). |
| Exception Criteria (numerator): | Candidates taking 2 dosage units of extended-release (ER) targeted medications per day. Immediate- release (IR) formulations are excluded. |

### Indicator #3: Duplicate therapy with Stimulants

The ADHD stimulants have potential for abuse. While most individuals who need these medications for their medical conditions use them appropriately, over-utilization has become a growing concern. Minimizing over-utilization of stimulants will help prevent abusive circumstances.

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|---|---|
| Candidates (denominator): | All patients with a diagnosis of ADHD receiving stimulants in the past 30 days. |

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|---|---|
| Exception Criteria (numerator): | Candidates with at least two different IR or ER stimulants from the same or different prescribers. Individuals receiving an IR and ER product concurrently are excluded. |

**Indicator #4: High Dose Medications**

The risk for adverse events with ADHD medications, including serious cardiac complications that may be fatal, increases as the dose of the agent increases. Studies have not shown improved response at doses above recommended maximums.[1,2] Minimizing use of ADHD medications at doses above recommended maximums may decrease adverse outcomes and associated costs.

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|---|---|
| Candidates (denominator): | All patients with a diagnosis of ADHD receiving targeted medications (Table 1) in the past 30 days. |
| Exception Criteria (numerator): | Candidates who are on any ADHD medication at a daily dose higher than that supported by Texas Department of Family and Protective Services (DFPS) literature-based treatment recommendations. New guidelines are scheduled for release fall of 2019. |

**Indicator #5: Multiple Prescribers of Stimulants**

The ADHD stimulants ADHD have potential for abuse. While most individuals who need these medications for their medical conditions use them appropriately, over-utilization has become a growing concern. Minimizing over-utilization of stimulants will help prevent abusive circumstances.

| | |
|---|---|
| Candidates (denominator): | All patients with a diagnosis of ADHD receiving stimulants in the past 30 days. |
| Exception Criteria (numerator): | Candidates with stimulants from 3 or more providers to minimize prescribers providing coverage within the same clinic. Multiple prescribers from the same clinic are excluded. |

**Indicator #6: Risk of Suicidal Ideation with Atomoxetine in Youth**

Atomoxetine use has been associated with increased risk of suicidal ideation in short-term studies in children and adolescents with ADHD. A Black Box Warning recommends balancing this risk with the clinical need.[3]

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|---|---|
| Candidates (denominator): | All patients < 18 years of age with a diagnosis of ADHD receiving atomoxetine in the past 30 days |
| Exception Criteria (numerator): | Candidates who have a history of suicide attempts, severe major depression, or bipolar disorder in the past 2 years. |

## METHODOLOGY

In May 2020, all physicians treating patients with any of the aforementioned drug-related problems were identified. Based on the distribution of patients/physician, the minimum patient/month threshold was set at one or more patients (i.e., physicians with one or more patients having a drug-related problem received the mailing). Providers were mailed the intervention materials on May 18, 2020.

Operational definitions:

**Targeted Group** – physicians treating three or more patients or more patients with any of the aforementioned drug-related problem(s) and who received mailed intervention materials *(Section 1.e.1.A Exhibit A of the Agreed Modifications to the RFP and Contractor Proposal).*

**Control Group** - physicians treating patients taking a polypharmacy drug but did not receive mailed intervention materials *(Section 1.e.1.A Exhibit A of the Agreed Modifications to the RFP and Contractor Proposal).*

**Intervention Drugs –** ADHD drugs

**Pre Intervention Time Period** – Dec 01, 2019 through May 31, 2020

**Post Intervention Time Period** – July 01, 2020 through December 31, 2020

**6-month Total Paid** – total drug costs can be defined as the total amount of paid ADHD drug claims for the above time periods for the prescribers in the control and target groups. The target group consisted of those prescribers who had prescribed polypharmacy drug therapy to more than two Medicaid patients. The control group consisted of all other prescribers who prescribed polypharmacy drug therapy agents in the designated time periods *(Sections 1.e.1. and 1.e.2 Exhibit A of the Agreed Modifications to the RFP and Contractor Proposal).*

**Average Number of Panel Patients per Month** - during the 6-month pre and post time periods, the number of unique Medicaid patients with a drug claim submitted using a respective provider number was captured each month. Medicaid patients that did not have a drug claim were not counted in the prescriber's panel. The monthly numbers were summed then divided by six to calculate the monthly average. For example, in Table 3, the physician (with provider number AB123456) had an average of 12 patients with at least one drug claim per month. If a patient had two different claims in June, they would be counted as one patient. By evaluating all patients seen by a specific physician, changes in prescribing patterns can be evaluated on existing and new patients *(Sections 1.e.1. and 1.e.2 Exhibit A of the Agreed Modifications to the RFP and Contractor Proposal).*

**Table 3: Average Number of Panel Patients per Month**

| Provider Number | Month # | Number of Unique Patients with a Drug Claim |
|---|---|---|
| **AB123456** | **1** | **10** |
| | **2** | **10** |

| | |
|---|---|
| 3 | 10 |
| 4 | 12 |
| 5 | 13 |
| 6 | 17 |
| **Total** | **72** |
| **Average Number of Panel Patients per Month** | **12** |

**Average Cost/Patient per Month** – this was calculated by dividing the total dollars paid for drug claims during the analysis time period by the total number of Medicaid panel patients during the respective time period. For example, in the targeted group post analysis; there were 31,563 patients who had a drug claim during the six month review period. The total amount of dollars paid for drug claims for these patients during the post analysis was $5,360,427. Dividing these two numbers ($5,360,427/31,563) yields an average cost per patient of $169.83 *(Sections 1.e.1. and 1.e.2 Exhibit A of the Agreed Modifications to the RFP and Contractor Proposal).*

$$\text{Average Cost/Patient/per Month} = \frac{\text{6-month Total Amount Paid for ADHD Drugs}}{\text{Average number of Panel Patients per Month}} / \text{(\# Months)}$$

**Total State Savings** *(Sections 1.e.3 and 1.e.4 Exhibit A of the Agreed Modifications to the RFP and Contractor Proposal)***:**

- Intervention Average Cost Savings per Month - the percent change seen in the control group was applied to the intervention group baseline Average Cost per Patient per Month. This amount represents the estimated Amount Paid per Targeted Physician per Patient in the absence of the intervention (i.e., Estimated Paid Amount). The Estimated Paid Amount per Patient per Month was then subtracted from the actual Intervention Target Group Average Cost per Patient per Month to estimate the Average Cost Savings per Patient per Month.
- 6-Month Total Savings - the Intervention Average Cost Savings per Patient per Month was multiplied by the total number of targeted patients served over the 6-month time frame.
- 6-Month State General Revenue Funds Savings= 6-Month Total State Savings X 0.4001.
- Total State Savings = 6-Month State General Revenue Funds Savings X 2.

## RESULTS

### Population-based intervention

A total of 73 physicians were targeted and received intervention materials. Table 4 compares the 6-month total amount paid for ADHD drugs, the total number of patients in each physician's panel per month, and the average cost per patient for the targeted and control groups during the six-month pre and post periods. When comparing the pre-Average Cost per Patient per Month between the targeted and control groups, the cost was approximately $4 higher for the targeted

group. This difference may be due to such factors as the targeted group having more patients prescribed polypharmacy drugs per physician or that associated average ADHD drug costs are inherently higher in the targeted group.

The control group saw a 12.76% decrease in the amount paid for intervention-related drugs while the targeted group saw a 11.52% decrease. Additionally, the average number of monthly patients for the physician's panel decreased 5.87% for the target group and decreased 8.46% for the control group. To control for changes in case load variance (i.e., the change in the number of panel patients) between the two groups, the average cost per patient was also calculated. Total amount paid and number of panel patient trends led to a 6.00% decrease in average cost per patient per month in the targeted group and a 4.70% decrease for the control group.

**Table 4: Six-Month Trends for Overall Targeted vs Control Group**

| Group | ADHD Management Drugs -- Six Months Total Paid Pre/Post | | | Average Number of Panel Patients per Month | | | ADHD Management Drugs Average Cost per Patient per Month | | |
|---|---|---|---|---|---|---|---|---|---|
| | Pre | Post | Change | Pre | Post | Change | Pre | Post | Change |
| Targeted | $6,058,498 | $5,360,427 | -11.52% | 5,589 | 5,261 | -5.87% | $180.68 | $169.83 | -6.00% |
| Control | $84,880,448 | $74,049,399 | -12.76% | 80,192 | 73,411 | -8.46% | $176.41 | $168.12 | -4.70% |

Table 5 shows the Intervention Average Cost Savings per Patient per Month and the savings calculations. Had the intervention not been mailed, the targeted pre average cost per patient per month would have decreased 4.70% from $180.68 to $172.18. The net difference between the actual and estimated average cost/patient for the targeted group was $2.35. Based on 31,563 targeted patients served per month during the six-month post period, the six-month Total Savings and Total State Savings were $74,173.05 and $29,676.64 respectively. Over a twelve-month period, the Total State Savings was $59,353.27.

**Table 5: Overall Intervention Average Cost Savings**

| State Cost Savings Calculation: | |
|---|---|
| Targeted Group: Actual ADHD Management Drugs Average Cost Per Patient Per Month (Pre) | $180.68 |
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Table 6 shows the changes in the clinical indicators based on the intervention. The overall change in indicators is a decrease of 26.8%.

**Table 6: Overall Intervention Changes in Clinical Indicators**

| Clinical Indicators | Baseline | Dec-2020 | % Change |
|---|---|---|---|
| ADHD Medication with No Indication in Adults | 59 | 45 | -23.7% |
| Dose Consolidation for Extended-Release Stimulants in Adults | 0 | 0 | 0.0% |
| Duplicate Therapy with Stimulants | 0 | 0 | 0.0% |
| High-Dose Medications | 0 | 0 | 0.0% |
| Multiple Prescribers of Stimulants | 0 | 0 | 0.0% |
| Risk of Suicidal Ideation with Atomoxetine in Youth (6 to 17 years of age) | 12 | 7 | -41.7% |
| Total | 71 | 52 | -26.8% |

## CONCLUSIONS

This population-based intervention was successful in encouraging appropriate use of drug therapy and providing prescribers with educational tools to better communicate with their patients' issues regarding appropriate treatment. This resulted in an economic impact on Texas Medicaid's pharmacy program expenditures, with a calculated twelve-month overall savings of $148,346.10 and savings to the State of $59,353.27 and a decrease in clinical indicators of 26.8%.

## REFERENCES


1. Subcommittee on Attention-Deficit/Hyperactivity Disorder, Steering Committee on Quality Improvement and Management. ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/ Hyperactivity Disorder in Children and Adolescents. Pediatrics. 2011; 128:1-16.
2. Post RE, Kurlansik SL. Diagnosis and Management of Attention-Deficit/Hyperactivity Disorder in Adults. Am Fam Physician. 2012;85(9):890-896. Available at: https://www.aafp.org/afp/2012/0501/p890.html Accessed May 3, 2019.
3. Strattera® (atomoxetine) prescribing information; revised May 2017. Eli Lilly and Company; Indianapolis, IN. Available at: http://pi.lilly.com/us/strattera-pi.pdf Accessed May 3, 2019.
4. Texas Preferred Drug List, Effective January 31, 2019 Available at: https://www.txvendordrug.com/sites/txvendordrug/files/docs/formulary/2018-0726-preferred-drug-list.pdf. Accessed May 3, 2019
5. Psychotropic Medication Utilization Parameters for Children and Youth in Foster Care (5th Version), Texas Department of Family and Protective Services, March 2016. Available at: *http://www.dfps.state.tx.us/Child_Protection/Medical_Services/documents/reports/2016-03_Psychotropic_Medication_Utilization_Parameters_for_Foster_Children.pdf. Accessed May 3, 2019.


**Table 1: Texas Maximum Daily Doses for ADHD Stimulants and Related Agents[4,5]**

| TX Medicaid Preferred Agents* | TX DFPS Literature-Based Maximum Daily Dosage (mg/day)[5] |
|---|---|
| **Stimulants** | |
| Adderall XR® (amphetamine salt combination) capsules | 60 |
| amphetamine salt combination IR tablets | 60 |
| Aptensio XR (methylphenidate) | 100 |
| Daytrana® (methylphenidate) patches | 30 |
| dexmethylphenidate IR tablets | 50 |
| dextroamphetamine IR tablets | 60 |
| methylphenidate IR tablets | 100 |
| methylphenidate ER tablets (authorized generic Concerta) | 108 |
| Quillichew ER (methylphenidate) | 100 |
| Vyvanse (lisdexamfetamine) | 70 |
| Vyvanse® (lisdexamfetamine) chewable tablets | 70 |
| **Non-Stimulants** | |
| atomoxetine capsules | 100 |
| guanfacine ER | 7 |

*PDL Annual Review Effective Date: January 30, 2020

**Table 2: Dose Consolidation in Adults for PDL Extended-Release Stimulants**

| Stimulants | | | |
|---|---|---|---|
| **DRUG** | **Taking 2 Units per Day** | **=>** | **Consolidated Dose** |
| Amphetamine/Dextroamphetamine Salt Combo Capsules (Adderall XR®) | 5mg, 10mg, 15mg | => | 10mg, 20mg, 30mg |
| Dexmethylphenidate Extended-Release Capsules (Focalin XR®) | 5mg, 10mg | => | 10mg, 20mg |
| Methylphenidate XR Capsules (Aptensio XR®) | 10mg,15mg, 20mg,30mg | => | 20mg,30mg,40mg,60mg |
| Methylphenidate Extended Release Tablets (Concerta®) | 18mg, 27mg | => | 36mg, 54mg |
| Methylphenidate Transdermal Patch (Daytrana®) | 10mg, 15mg | => | 20mg, 30mg |
| Lisdexamfetamine (Vynase®) | 10mg, 20mg, 30mg | => | 20mg, 40mg, 60mg |